



CHROŃMY MURAWY  
klub przyrodników

# PROGRAMME & EXCURSION GUIDE

10th EUROPEAN DRY GRASSLAND MEETING

When theory meets practice:  
Conservation and restoration of grasslands

24 - 31 May 2013 • Zamość • Poland

**Organizers:**

Naturalists' Club (Klub Przyrodników) <http://www.kp.org.pl/>

European Dry Grassland Group <http://www.edgg.org/>

**Supporting organisations and institutions:**

International Association for Vegetation Science (IAVS; [www.iavs.org](http://www.iavs.org))

LIFE+ Programme (<http://ec.europa.eu/environment/life/>)

National Fund for Environmental Protection and Water Management

([www.nfosigw.gov.pl](http://www.nfosigw.gov.pl))

Regional Directorate for Environmental Protection in Lublin

(<http://lublin.rdos.gov.pl/>)

Department of Geobotany (Institute of Biology and Biochemistry) of Maria

Skłodowska University in Lublin

Department of Plant Ecology and Environmental Conservation (Institute of

Botany) of Warsaw University

Floristisch-soziologische Arbeitsgemeinschaft (FlorSoz;

<http://www.tuexenia.de/>)

Hacquetia (<http://hacquetia.zrc-sazu.si/>)

Wiley-Blackwell (<http://eu.wiley.com/WileyCDA/>)

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<http://www.murawy-life.kp.org.pl>

## PRE-SYMPOSIUM EXCURSION

from	to	24.05.2013	duration
9:00	9:15	meeting with participants at KPN headquarters	0:15
9:15	9:25	transfer to Laski	0:10
9:25	9:45	Silene borhystenica locality by Laski	0:20
9:45	10:15	transfer to Palmiry	0:30
10:15	11:15	Lotne Piaski	1:00
11:15	12:00	transfer to Grochalskie Piachy	0:45
12:00	13:30	Grochalskie Piachy dunes	1:30
13:30	14:00	transfer to Kikoły	0:30
14:00	15:00	Kikoły grassland	1:00
15:00	15:15	transfer to Orzechowo	0:15
15:15	16:15	Orzechowo grassland	1:00
16:15	16:45	transfer to Janki	0:30
16:45	17:45	Janki grassland	1:00
17:45	19:00	transfer to Ostrolęka	1:15
19:00	20:00	dinner	1:00
from	to	25.05.2013	duration
7:30	8:30	breakfast	1:00
8:30	9:00	transfer to Czartoria	0:30
9:00	11:00	Czartoria grasslands	2:00
11:00	13:30	transfer to Kapice	2:30
13:30	16:30	Kapice grasslands	3:00
16:30	19:00	transfer to Haćki	2:30
19:00	19:30	Haćki grasslands	0:30
19:30	20:30	transfer to Mielnik	1:00
20:30	21:30	dinner	1:00

from	to	26.05.2013	duration
7:30	8:30	breakfast	1:00
8:30	10:15	Mielnik grasslands	1:45
10:15	10:45	transfer to Kózki	0:30
10:45	11:45	Kózki reserve	1:00
11:45	12:30	transfer to Bużyska	0:45
12:30	14:30	Bużyska grasslands	2:00
14:30	18:30	transfer to Zamość	4:00

## SYMPOSIUM

from	to	26.05.2013	duration
17:00	19:00	registration in Mercure Hotel in Zamość	2:00
19:00	20:30	dinner	1:30
from	to	27.05.2013	duration
8:00	9:30	breakfast	1:30
9:30	10:30	registration in Mercure Hotel in Zamość	1:00
10:30	11:30	opening ceremony	1:00
11:30	12:00	overall information	0:30
12:00	13:00	plenary presentation <b>Application of technical grassland restoration in Europe: recovery of grassland biodiversity by seed mixtures at multiple countries and scales</b> <i>Peter Török</i>	1:00
13:00	14:30	lunch	1:30
14:30	14:50	oral presentation <b>Agricultural intensification and fragmentation interactively affect insect communities of calcareous grasslands</b> <i>Verena Rösch, Teja Tschamtkke, Christoph Scherber, Péter Batáry</i>	0:20

14:50	15:10	oral presentation <b>Fire in steppe reserves: to burn or not to burn? A response of spider community to prescribed and spontaneous burning</b> <i>Nina Polchaniova</i>	0:20
15:10	15:30	oral presentation <b>Molecular ecology and conservation genetics of the weevil <i>Centricnemus leucogrammus</i> (Insecta: Coleoptera)</b> <i>Łukasz Kajtoch, Daniel Kubisz, Miłosz A. Mazur, Wiesław Babik</i>	0:20
15:30	15:50	oral presentation <b>Importance of closed landfills as dry grassland in urbanized areas: Ecological assessment using carabid beetles</b> <i>Yuno Do, Gea-Jae Joo</i>	0:20
15:50	16:10	oral presentation <b>Orthoptera life forms as indicators of grassland quality</b> <i>Rocco Labadessa, Mirella Benedetta Campochiaro, Graziana Antolino, Luigi Forte, Paola Mairota</i>	0:20
16:10	16:30	coffee break	0:20
16:30	17:00	poster session	0:30
17:00	17:20	oral presentation <b>Linking elevation and vegetation types in alkali landscapes – Implications for habitat mapping by airborne laser scanning</b> <i>Balázs Deák, W. Mücke, A. Schroiff, H. Heilmeyer</i>	0:20
17:20	17:40	oral presentation <b>Necessity of protection of original flora and fauna of East Ukraine steppes</b> <i>Victor Tokarsky</i>	0:20
17:40	18:00	oral presentation <b>Should grazing be re-introduced in Hungarian dry grasslands?</b> <i>László Erdős, Dániel Cserhalmi, Zoltán Bátor, Tamás Morschhauser, Andrea Dénes</i>	0:20

18:00	18:20	oral presentation <b>Dry grassland vegetation of Central Podolia (Ukraine) – first insights on syntaxonomy, ecology, and biodiversity</b> <i>Anna Kuzemko, Ioana Ardelean, Thomas Becker, Michael Jeschke, Ute Becker, Monica Beldean, Yakiv Didukh, Christian Dolnik, Alireza Naqinezhad, Emin Uğurlu, Aslan Ünal, Kiril Vassilev, Eugeny Vorona, Olena Yavorska, Jürgen Dengler</i>	0:20
18:20	19:00	overall discussion	0:40
20:00		dinner	
from	to	<b>28.05.2013</b>	duration
8:00	9:00	breakfast	1:00
9:00	10:00	plenary presentation <b>LIFE Nature for dry grasslands: examples and best practices</b> <i>Simona Bacchereti</i>	1:00
10:00	10:20	oral presentation <b>Trait-based analysis of spontaneous grassland recovery in sandy old-fields</b> <i>Ágnes-Júlia Albert, András Kelemen, Orsolya Valkó, Tamás Migléc, Anikó Csecserits, Tamás Rédei, Balázs Deák, Béla Tóthmérész, Péter Török</i>	0:20
10:20	10:40	oral presentation <b>Vegetation recovery and management of abandoned sheep corrals in semi-arid grasslands</b> <i>Jaime Kigel, A. Vinograd, E. Zaady</i>	0:20
10:40	11:00	oral presentation <b>Indoor germination experiment confirms field evidences - Litter is crucial in suppression of weed seedling establishment in grassland restoration</b> <i>Tamás Migléc, Péter Török, Orsolya Valkó, András Kelemen, Katalin Tóth, Béla Tóthmérész</i>	0:20
11:00	11:20	coffee break	0:20
11:20	11:50	poster session	0:30

11:50	12:10	oral presentation <b>Can grassland stability be inferred from fine-scale spatial patterns?</b> <i>Sandor Bartha, Klára Virágh, Cecilia Komoly</i>	0:20
12:10	12:30	oral presentation <b>Environmental and management drivers of vascular plant diversity in semi-natural dry grasslands in relation to vegetation dynamics</b> <i>Eleonora Giarrizzo, Sabina Burrascano, Laura Zavattero, Carlo Blasi</i>	0:20
12:30	12:50	oral presentation <b>Relevance of surrounding landscape for alpha diversity of dry grasslands</b> <i>Monika Janišová, Dana Michalčová</i>	0:20
12:50	13:10	oral presentation <b>Investigations on the migration of target species from semi dry grassland (Cirsio pannonicum-Brometum) to former cultivated fields in Sankt Anna am Aigen (SE Austria)</b> <i>Philipp Sengl, Martin Magnes</i>	0:20
13:10	14:40	<b>lunch</b>	1:30
14:40	15:00	oral presentation <b>Conservation of dry grassland and grey dune habitats of EU importance in Latvia</b> <i>Solvita Rūsiņa, Baiba Strazdiņa, Brigita Laime, Anita Namatēva, Āgnese Priede</i>	0:20
15:00	15:20	oral presentation <b>The project “Conservation and restoration of xerothermic grasslands in Poland” - preliminary results</b> <i>Katarzyna Barańska, Michał Żmihorski, Paweł Pluciński, Anna Cwener, Piotr Chmielewski, Katarzyna Kiaszewicz</i>	0:20
15:20	15:40	oral presentation <b>Priority actions for dry grasslands in Southern Belgium</b> <i>Sandrine Godefroid, Marc Ameels, Stéphane Bocca, David Doucet, Joëlle Huysecom, Xavier Janssens, Jean-Luc Mairesse, Séverin Pierret, Fabienne Van Rossum, Bernard Vandoren, Patrick Verté</i>	0:20

15:40	16:00	oral presentation <b>A thematic Action Plan related to the conservation of agro pastoral biodiversity through the rationalization of grazing pressure for Aegean island, Skyros, Greece</b> <i>Michael Vrahnakis, Fotiadis George, Kleftoyanni Vassiliki, Nasiakou Stamatia</i>	0:20
16:00	16:50	overall discussion	0:50
16:50	17:10	coffee break	0:20
17:10	17:40	poster session	0:30
17:40	18:00	presentation of the post-symposium excursion	0:20
18:00	20:00	Award, EDGG General Assembly	2:00
21:00		Grassland Party in Muzealna Restaurant	

## POST-SYMPIOSIUM EXCURSION

from	to	29.05.2013	duration
8:00	9:00	breakfast	1:00
	9:20	gathering in front of the Mercure hotel	
9:30	12:30	Popówka Natura 2000 site and Czumów grasslands	3:00
12:40	13:40	regional food refreshments in the open air	1:00
13:50	17:20	Dobużek Natura 2000 site	3:30
17:30	19:30	Guided tour through the old town of Zamość	2:00
20:00		dinner	
from	to	30.05.2013	duration
7:30	8:30	breakfast	1:00
	8:50	gathering in front of the Mercure hotel	
9:00	12:15	Żurawce Natura 2000 site	3:15
12:20	15:00	Horodysko Natura 2000 site	2:40
15:10	18:00	Żmudź Natura 2000 site	2:50
19:30		dinner	

from	to	31.05.2013	duration
8:00	9:00	breakfast	1:00
	9:20	gathering in front of the Mercure hotel	
9:30	14:00	Mięćmierz grasslands	4:30
	15:30	Stop in Lublin	
	19:00	Return to Zamość	

# YOUNG INVESTIGATOR PRIZES (YIPS) FOR BEST POSTERS AND TALKS:

During the conference, the best poster and talk presented by a young investigator (<34 years in age) will be awarded with attractive book prize, founded mainly by Wiley-Blackwell. In both categories there will be a first, second and third-best contribution. Basically, the poster and oral presentations should be evaluated according to the five aspects/criteria:

- Novelty and relevance of the research
- Appropriateness and quality of the methods applied
- Presentation of poster/talk appetizer in the lecture hall
- Layout and presentation of the poster/talk
- Handling of questions and comments by the author in the poster/talk session

If you are eligible (i.e. presenting author below 34 years in age), you are welcome register for the poster or/and talk competitions immediately after your conference registration in the conference office by giving the staff there your date of birth. In case you select to take part in the poster competition, a red sticker will then be given to you to be placed at your poster.

Three well-experienced participants will form the Prize Committee (PC). After voting, the PC will count the votes per competitor and competition. In case of equal numbers, the prize will be assigned to the younger of the two presenters.

All posters take part in the competition will have a red sticker at the top. All the conference participants for the jury. We kindly ask all of you to select the one poster by a young presenting author that you like best and to put your writing selection (poster title and author) onto a specifically-designed, official voting form, found in the delegates' pack. The form will be put into the poll not later than 28<sup>th</sup> of May, until the end of lunch (14.40).

For oral presentations a jury of six internationally-balanced, well-experienced participants will be formed. The jury will be provided with a voting form, where all talks taking part in the competition are presented. Each member of the jury will put ordinal-scaling votes for all the talks that he/she attended and preferred in a specifically-designed pre-structured voting form. The jury will give its results to the PC after the last talk of 28<sup>th</sup> of May.

# DRY GRASSLAND SPECIAL FEATURES:

As in previous years, EDGG will also produce Special Features in international journals dealing with all topics connected to dry grasslands and steppes.

This year, there will be two Special Features:

Dry Grassland Special Feature in Tuexenia (<http://www.tuexenia.de/index.php?id=14>), which has a tradition since 2005. It is a Central European geobotanical journal included in the Web of Science. This Special Feature will be edited by an experienced international team of guest editors under the chairmanship of Thomas Becker (<http://www.unitrier.de/index.php?id=43822&L=2>) and appear in summer 2014. All papers dealing with submediterranean to hemiboreal dry grasslands in Europe at least from a partly botanical perspective are welcome.

Dry Grassland Special Feature in Hacquetia (<http://versita.metapress.com/content/120766>) which will appear in autumn 2014. Hacquetia has applied for inclusion in the Web of Science and we expect that this will be the case in the near future. This Special Feature will also be edited by an experienced international team of guest editors, this time chaired by Jürgen Dengler (<http://www.biodiversity-plants.de/perso.php?mnb=13&lang=en>). The topics are wider than in case of Tuexenia and include both botanical and zoological studies from dry grasslands and steppes all over the Palaearctic realm.

Both journals are highly attractive as they offer open-access and colour publishing as well as longer articles - and all that free of charge. The attractiveness of publishing a Special Feature is further increased by the fact that the participants can expect topically very competent and highly motivated editors and after acceptance more citations than in a regular publication (through the higher visibility and through stimulated cross-citations).

All presenters of 10<sup>th</sup> EDGM are eligible to contribute to these Special Features. Shortly after

The conference in Zamość, we will announce the precise regulations and a deadline until which abstracts for possible consideration can be submitted. Full papers can only be submitted when invited after positive evaluation of the abstract.





**EXCURSION GUIDE**



## Central and eastern Poland

Flat, postglacial plains of east-central Poland are not favorable areas for dry grasslands development. They are crossed by valleys of big rivers: Vistula, Bug, Narew and its tributary Biebrza. The above valleys provide more suitable habitats for dry grasslands on escarpments, deep alluvial sands or dune areas formed during early Holocene. However, the presence of most of the grasslands is a result of centuries-long human activity. Deforestation and livestock grazing allowed the spread of dry grasslands. The peak of traditional agriculture can be dated on XIXth and the first half of XXth century. Vast areas were so deforested that the peat have become there a source of fuel for households. Extend and prevalence of dry grasslands and plants connected with such habitats have been documented by first naturalists and botanists exploring the area. Nowadays existing grasslands are only the relicts of the past, disappearing as a result of changes in the agriculture that took place after the WW2 and more rapidly during the last twenty years.

The grasslands composition within the region depends on type and origin of the substrate. Morainic material with high fraction of silt and calcium carbonate exposed on south-facing slopes of the valleys is a place where thermophilous fringe vegetation from *Trifolio-Geranietea* can develop. Some patches of such vegetation are close to the *Fectuco-Brometea* but their placement within the above class is disputable. Glacial sandy deposits of kames, eskers and moraines as well as alluvial sands, both rich in calcium carbonate, are places where vegetation of *Koelerion glaucae* can develop. On the contrary mostly acidic dune sands are the habitat of *Corynephorion canescentis* vegetation.

## Kampinos National Park

Kampinos National Park was created in 1959 and covers 385,44 km<sup>2</sup> stretching north-west of the Polish capital city, Warsaw. In 2000 it was added to the UNESCO list of Biosphere Reserves. The national park lies within Vistula pre-glacial valley, which landscape is dominated by alternating dune and mire belts. During the early XX<sup>th</sup> century the area of the

park was famous for its active dunes. Today 70% of the park surface is covered by forests. Pine dominates on dune sands and black alder within the mire areas. Non-forest ecosystems consist mostly of tall sedge and wet meadow vegetation within the mire belts and dry grasslands and heathlands on dunes. Park flora counts 1245 species with most valuable being connected to litter meadows, dry grasslands and open forests. The park was is known for successful re-introductions of moose (since 1951), beaver (since 1980) and lynx (since 1992).



## Lotne Piaski

Lotne Piaski is an area of dry grasslands and heathlands in the eastern part of the Kampinos National Park. It has been an open active dune field till 50's of XX<sup>th</sup> century. Then attempts were undertaken to afforest the area. Due to the very poor soils and frequent fires afforestation projects failed to certain extent and today young forests scattered among dry grasslands and heathlands prevail. Worth mentioning are localities of *Dianthus arenarius* and *Arctostaphylos uva-ursi*.

## Grochalskie Piachy

Grochalskie Piachy Military Training Area is the last active dune complex within the Kampinos National Park. The area was cleared during XIX<sup>th</sup> century to

provide better visibility for nearby Modlin Fortress. It allowed the sands to be moved by wind. The sands have never been fully afforested because they were still used by the army. Today unexploded bombs from WW2 found in Warsaw and its surroundings are being detonated here. Because it is the last place within the Kampinos National Park where landscapes common once over the park area were conserved, it has become a refuge for species connected with open sandy landscape such as *Stereocaulon incrustatum* and *Stereocaulon condensatum*.

## Kikoły

Kikoły grassland is a small but species-rich dry grassland from the Koelerion glaucae alliance. Quite a large share of Festuco-Brometea and Trifolio-Geranietea species such as *Scabiosa ochroleuca*, *Veronica spicata*, *Dianthus carthusianorum*, *Salvia pratensis* and *Vincetoxicum hirundinaria* is also present. Moreover, it holds a large population of *Pulsatilla pratensis*. The grassland is located on a south-facing slope of the Narew valley, built mainly from sand and gravel rich in calcium carbonate.

The open area of the grassland is small and threatened by trees' encroachment. Even more severe threats are residential developments that can be built on the grassland due to the rapid urbanization of surrounding

ownership structure of the grassland and high prices of land in the area.

## Orzechowo

Koelerion glaucae and Armerion elongatae grasslands within the Narew river valley below the Orzechowo village are still rich in lichen and plant species even though they have not been grazed since many years. Worth mentioning are localities of *Petasites spurius*, *Armeria maritima* ssp. *elongata*, *Thymus serpyllum*, *Astragalus arenarius*, *Silene tatarica*, *Salsola kali* ssp. *ruthenica*, *Plantago arenaria*, *Diploschistes muscorum*, *Cladonia foliacea*, *Peltigera* spp.

## Janki

Slopes of the Bug river valley near Janki village are covered with typical for Mazovia, once grazed, dry grassland dominated with *Phleum phleoides*. The area of the grassland is still quite large but tree encroachment is visible. Among other species *Koeleria glauca*, *Helianthemum nummularium*, *Dianthus carthusianorum*, *Silene otites* and *Salvia pratensis* can be found there.

## Czartoria

Vast dry grasslands and tree junipers of Czartoria village are the relicts of the vegetation once very common within the river valleys of Poland. Grazed by unfenced cows, they provide a reference area for big river valleys of Central Europe. A stand of *Koeleria glauca*, *Astragalus arenarius* and *Petasites spurius*.

## Biebrza National Park

Biebrza National Park is the largest national park in Poland, covering 592,23 km<sup>2</sup>. It was created in 1993 and includes nearly the whole valley of the Biebrza river from the uppermost course to its source. The park has been created to protect both the diverse birdlife and plantlife of the area. The Biebrza valley is one of the largest peatland systems in temperate Europe. Fens (from sedge-moss rich fens to tall sedge and reedbeds) dominate the landscape of the park. Majority of the park





area has been used as a hay meadows and pastures in the past and some parts have been moderately drained. Within fens mineral islands being the tops of the inland dunes surrounded by growing peatland can be found. On those islands, used as a pastures, dry grasslands and grazed oak forests have developed. Today the park faces the problem of secondary succession of abandoned meadows and pastures. While fens are being mown more frequently due to the EU agro-environmental programs, reintroduction of grazing on the mineral islands seems to be more difficult. Fortunately high densities of ungulates within the park prevent rapid tree encroachment on the grasslands.

### **Kapice**

Mineral islands west of Kapice village form an unique mosaic of the dry grasslands from *Koelerion glaucae*, litter meadows (Molinion alliance) and vegetation from class Trifolio-Geranietea and order Quercetalia pubescenti-petraeae under the oak trees. Probably

the largest population of *Dracocephalum ruyschiana* in Poland grows there. Moreover there are localities of *Iris aphylla*, *Thesium ebracteatum*, *Pulsatilla pratensis*, *Anthericum ramosum*, *Prunella grandiflora*, *Centaurea pseudophrygia*, *Anemone sylvestris*, *Orobancha purpurea* and *Pulmonaria angustifolia*.

### **Haćki**

Within monotonous, flat, agricultural landscape of Bielsk lowland Haćki kames form the unique island of diversity. Build from dust-size particles rich in calcium carbonate and used as a pasture land the kames have become dry grasslands. There were attempts to afforestate them but today local community takes care of that area holding cultural and natural values and helps to keep it in its original shape. Rich stand of *Anemone sylvestris*, also present *Gentiana cruciata*, *Prunella grandiflora*, *Scabiosa ochroleuca*, *Phleum phleoides* and *Scorzonera humilis*.

## Mielnik

Near Mielnik Bug river crosses the area where upper Cretaceous chalk lies close enough to the surface that it becomes visible on the valley slopes. That unusual in lowland Central Europe situation allowed the development of dry grasslands from Festuco-Brometea. Within "Góra Uszeście" nature reserve we would find such species as *Scorzonera purpurea*, *Gentiana cruciata*, *Oxytropis pilosa*, *Koeleria macrantha*, *Allium montanum*, *Brachypodium pinnatum*, *Campanula sibirica* and *Campanula bononiensis*. Due to the improper strict protection the dry grassland has nearly disappeared from the reserve being overgrown with shrubs and trees. These year a project aimed at re-establishment of the thermophilous vegetation will be initiated within the reserve.

## Kózki

The sandy dunes of the Kozki Nature Reserve have been protected as the nesting site of many bird species requiring open, sandy areas. Only later its floristic values have been identified. It is one of the few nature reserves in central and eastern Poland, where

active protection in form of sheep grazing is applied along with more common shrub removal. Due to the management vast areas of open sandy grasslands can be still found within the reserve.

## Bużyska

One of the largest traditionally managed dry grasslands within Bug river floodplain. Cattle is still not fenced here and grazes the grasslands in large herds consisting of the cows of different owners from one village. A mosaic of *Armeria elongata* and *Koeleria glauca* grasslands with species as *Silene otites*, *Silene tatarica*, *Dianthus carthusianorum*, *Koeleria glauca*, *Scabiosa ochroleuca*, *Petasites spurius*, *Armeria maritima* ssp. *elongata*, *Astragalus arenarius*. The lower lying areas are occupied by *Nardion* grasslands.



## The Lublin region

The Lublin region is an area of xerothermic vegetation, located on the route of postglacial plant migration from the Podolia repository to Central Europe. Thermophilous species can be encountered here on balks, roadsides and forest edges whereas typical grassland communities are formed mostly on slopes of river valleys and outcrops of sedimentary rocks of the Cretaceous period.

The first reports of grassland plants of this area comes from floristic notes of the second half of the nineteenth century. Descriptions of plant communities of the region appear in the literature of the 1950s. In the valleys of the region's major rivers: Vistula, Bug and Wieprz there were mentions of *Stipa* grasslands, practically non-existent in the Lublin province today.



The grasslands of the region are clearly differentiated according to the type of substrate (limestone or loess). On loess soil *Thalictrum-Salvietum pratensis* develops, which is formed in dry places by *Elymus hispidus*, *Poa angustifolia*, *Carex praecox*, *Salvia pratensis* and *Thalictrum minus*. In more moist habitats the place of xeromorphic grasses is taken by *Brachypodium pinnatum*, a more mesophilous species. On loess substrate, in large river valleys, on very small areas remain patches of grasslands representing the *Festuco-Stipion* associations: *Sisymbrio-Stipetum*

*capillatae* and *Koelerio-Festucetum rupicolae*. On calcareous soil, shallow rendzinas forms *Inuletum ensifoliae*, dominated by *Inula ensifolia* and *Carex humilis*; the community also contains *Cirsium pannonicum*, *Aster amellus*, *Thesium linophyllum*, *Prunella grandiflora*, and less frequently, *Linum flavum*. The occurrence of *Inuletum ensifoliae* is strictly related to substrate – the community persists even in conditions of considerable overshadowing. On deeper rendzinas one can encounter species-rich patches of grasslands containing taxa typical both of calcareous and loessy environments. They are, among others, *Elymus hispidus*, *Adonis vernalis*, *Carex humilis*, *Thesium linophyllum*, *Prunella grandiflora*, *Teucrium chamaedrys*, *Salvia pratensis*, *Salvia verticillata*, sometimes also *Gentiana cruciata*. Possibly the most common plant association formed on limestone is the one dominated by *Brachypodium pinnatum* and *Teucrium chamaedrys* with *Salvia pratensis*, *Aster amellus*, *Leucanthemum ircutianum*, *Galium verum*, *Medicago falcata*, *Scabiosa ochroleuca*. It has been described in literature as an impoverished form of *Inuletum ensifoliae* or “*Brachypodio-Teucrietum*”, an association considered typical for the Lublin region. On fallows initial grasslands develop, frequently dominated by just one species, such as *Aster amellus*, *Anemone sylvestris*, *Hieracium piloselloides* or *Picris hieracioides*. *Scabiosa ochroleuca*, *Salvia verticillata*, *Medicago falcata* and *Melampyrum arvense* also occur in great abundance. Species belonging to *Molinio-Arrhenatheretea* and *Stellarietea mediae* class have a large share in the initial communities.

The most serious threat to ‘old’ grasslands is succession. ‘New’ ones suffer mostly due to expansion of *Calamagrostis epigejos*, or less frequently *Solidago canadensis* and *S. gigantea*.

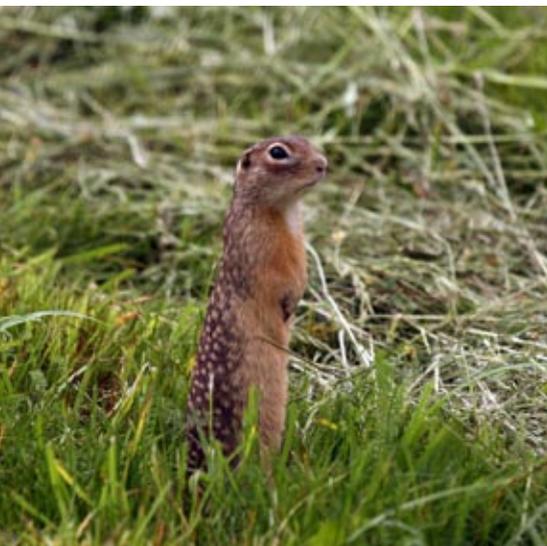
## Zamość

Zamość is a town with a population of 65,000 inhabitants. It is situated in the south-eastern part of the Lublin province, by the national route S17, connecting the Polish capital to the border crossing in Hrebenne. The town was founded by chancellor Jan Zamoyski in 1580. Its layout was designed by an Italian architect Bernardo Morando in accordance with the Italian Renaissance theories of the 'ideal town'. The town was laid out in the shape of an elongated pentagon, with a centrally situated Great Market Square and two smaller market places, Water Market and Salt Market. A considerable amount of land was assigned towards the owner's residence near which the collegiate church and the building of the Zamość Academy were located. A multinational city would not be complete without temples such as an Armenian church, a synagogue or St Francis and St Clara monasteries. The whole town was surrounded by a system of bastion fortifications. The most important historic monuments of the Great Market Square include the Armenian houses and the majestic Town Hall. Access to commercial facilities in the buildings located on the Great Market Square was made easier through the arcades surrounding the market and running along the main streets of the town.

Not only was Zamość a town of merchants but also an important fortress in the Polish defense system. As one of the few towns, it survived the siege during the Swedish invasion of Poland in the mid-seventeenth century. Its military importance increased significantly in 1821 when it was surrounded by an additional system of fortifications. The Old City of Zamość was declared a historical monument and since 1992 it has been listed on the UNESCO World Heritage List.



## FIRST DAY OF POST-SYMPOSIUM EXCURSION (Wednesday, 29.05.2013)



### Popówka

Popówka is a nature reserve with an area of 53.71 hectares, which was created in 1988 in order to protect the population of the spotted ground squirrel *Spermophilus suslicus*. The reserve (as well as the area of the Natura 2000 network) is located on the north edge of the Miączyn village, next to the road linking Miączyn to Grabowiec. Because of cow grazing carried out in the area of the sanctuary, optimal conditions for the population of suslik exist there, whose numbers are estimated at more than 2500 individuals (the 2007 figures). The ground of the pastures is based on loess and rendzinas. The best formed xerothermic and fringe plant communities can be encountered at the border of the sanctuary, on the side of the asphalt road. Among the rarest plant species occurring here are *Astragalus onobrychis* and *Anemone sylvestris*.

### Czumów

The vicinity of villages of Czumów and Gródek near Hrubieszów are long-known sites of occurrence of grassland vegetation, which has developed here on the steep loessy slopes of the Bug river valley, extending over a distance of several kilometers and reaching up to 30 m in height. The Bug river banks with wet meadows, riparian forests and aquatic vegetation communities are protected as a Natura 2000 site "Zachodniowołyńska Dolina Bugu" (code PLH060035).

#### The following types of habitats from the EU 92/43 directive can be found here:

- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (code 6430)
- Alkaline fens (code 7230)
- Oak-hornbeam forests of Galio-Carpinetum (code 9170)
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (code 91E0)
- Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation (code 3150)
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (code 6210)
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (code 6410)

The species-rich grasslands were in the past used as pastures. Devoid of grazing, the grasslands, which belong to the Thalicro-salvietum pratensis type, vanishing in the Lublin region, get overgrown with grasses such as *Elymus hispidus* and *Brachypodium pinnatum*, and rare and protected plant species gradually disappear. This is the fate that befell *Echium russicum*, still present here a few years ago.

The most interesting species of fauna of this Natura 2000 site are: the spotted ground squirrel, rare birds: *Crex crex*, *Gallinago media*, *Merops apiaster*, *Sterna hirundo*, butterflies: *Lycaena dispar*, *Maculinea nausithous*, *Pericallia matronula* and dragonflies – *Ophiogomphus cecilia*. Since 2010, the Naturalists' Club

with Regional Directorate for Environmental Protection in Lublin, within the framework of the “Conservation and restoration of xerothermic grasslands in Poland – theory and practice” scheme have conducted the re-establishment of the *Echium russicum* population using seedlings from the collection of the Maria Curie-Skłodowska University Botanical Garden in Lublin.

The complicated structure of land ownership, proximity to heavily used fields as well as lack of interest of the local community in restoring grazing make it very difficult to conduct effective protection of the grassland habitat in the area.

### **Short list of vascular plants found in dry grassland communities of the Czumów site:**

<i>Achillea pannonica</i>	<i>Coronilla varia</i>	<i>Phleum phleoides</i>
<i>Adonis vernalis</i>	<i>Crepis praemorsa</i>	<i>Pimpinella saxifraga</i>
<i>Agrimonia eupatoria</i>	<i>Dianthus carthusianorum</i>	<i>Poa angustifolia</i>
<i>Agropyron intermedium</i>	<i>Echium russicum</i>	<i>Polygala comosa</i>
<i>Anemone sylvestris</i>	<i>Euphorbia cyparissias</i>	<i>Potentilla arenaria</i>
<i>Anthericum ramosum</i>	<i>Falcaria vulgaris</i>	<i>Primula veris</i>
<i>Artemisia campestris</i>	<i>Filipendula vulgaris</i>	<i>Prunella grandiflora</i>
<i>Asparagus officinalis</i>	<i>Fragaria vesca</i>	<i>Salvia pratensis</i>
<i>Asperula cynanchica</i>	<i>Fragaria viridis</i>	<i>Salvia verticillata</i>
<i>Aster amellus</i>	<i>Galium verum</i>	<i>Scabiosa ochroleuca</i>
<i>Astragalus onobrychis</i>	<i>Gentiana cruciata</i>	<i>Sedum maximum</i>
<i>Brachypodium pinnatum</i>	<i>Gypsophila paniculata</i>	<i>Silene vulgaris</i>
<i>Briza media</i>	<i>Hypericum perforatum</i>	<i>Stachys recta</i>
<i>Campanula bononiensis</i>	<i>Iris aphylla</i>	<i>Teucrium chamaedrys</i>
<i>Campanula sibirica</i>	<i>Knautia arvensis</i>	<i>Thalictrum minus</i>
<i>Carduus nutans</i>	<i>Medicago falcata</i>	<i>Thesium linophyllum</i>
<i>Carex humilis</i>	<i>Nonea pulla</i>	<i>Thymus marschallianus</i>
<i>Carex praecox</i>	<i>Ophioglossum vulgatum</i>	<i>Trifolium montanum</i>
<i>Centaurea rhenana</i>	<i>Orchis militaris</i>	<i>Verbascum phoeniceum</i>
<i>Centaurea scabiosa</i>	<i>Origanum vulgare</i>	<i>Veronica chamaedrys</i>
<i>Cerasus fruticosa</i>	<i>Orobanche kochii</i>	<i>Vincetoxicum hirundinaria</i>
<i>Chamaecitissus albus</i>	<i>Peucedanum alsaticum</i>	<i>Viola hirta</i>
<i>Chamaecitissus ruthenicus</i>	<i>Peucedanum oreoselinum</i>	

## Dobużek

The Dobużek Natura 2000 site protects part of the Huczwa river valley located between the villages of Dobużek and Mikulin near the town of Tyszowce.

### The following plant communities of the directive 92/43 EEC can be encountered here:

- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (code 6430)
- Lowland hay meadows (code 6510)
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (code 6210)

Most of the dry grassland is protected as a nature reserve “Skarpa Dobużańska”, in an area of about 5 hectares. The communities have been formed on the steep, limestone slopes of southern exposure and their typical, terraced appearance is a reminiscent of the agricultural past of this site. In the reserve mostly *Brachypodium pinnatum* grasslands can be found.

The fauna of the area is represented by endangered bird species such as *Crex crex* or *Lanius collurio* as well as several butterfly taxa: *Lycaena dispar*, *Maculinea nausithous*, *Maculinea teleius*, *Papilio machaon*.

Within the framework of the “Conservation and restoration of xerothermic grasslands in Poland – theory and practice” scheme, in 2010 cow grazing was restored here. The Naturalists’ Club, Regional Directorate for Environmental Protection in Lublin and Zamość Natural Society employ conservation measures which aim at improving the condition of *Echium russicum* population, such as enriching the population with specimens from the Botanical Garden in Lublin, litter raking and mowing of selected fragments of the grassland.

The most serious threats to the area include overgrowing of grasslands by shrub vegetation (mostly *Prunus spinosa*), and the expansion of unwanted species of grasses (*Calamagrostis epigejos*).



### Short list of vascular plants found in dry grassland communities of the Dobužek site:

<i>Achillea pannonica</i>	<i>Euphrasia stricta</i>	<i>Scabiosa ochroleuca</i>
<i>Achillea setacea</i>	<i>Falcaria vulgaris</i>	<i>Seseli annuum</i>
<i>Acinos arvensis</i>	<i>Festuca rupicola</i>	<i>Stachys recta</i>
<i>Adonis vernalis</i>	<i>Filipendula vulgaris</i>	<i>Teucrium chamaedrys</i>
<i>Agrimonia eupatoria</i>	<i>Fragaria viridis</i>	<i>Thalictrum minus</i>
<i>Allium oleraceum</i>	<i>Galium boreale</i>	<i>Thesium linophyllon</i>
<i>Alyssum alyssoides</i>	<i>Galium verum</i>	<i>Thymalaea passerina</i>
<i>Anemone sylvestris</i>	<i>Hieracium pilosella</i>	<i>Thymus marschallianus</i>
<i>Anthericum ramosum</i>	<i>Hypericum perforatum</i>	<i>Verbascum phoeniceum</i>
<i>Anthyllis vulneraria</i>	<i>Inula ensifolia</i>	<i>Veronica spicata</i>
<i>Asparagus officinalis</i>	<i>Knautia arvensis</i>	<i>Viola collina</i>
<i>Aster amellus</i>	<i>Leucanthemum vulgare</i>	<i>Viola rupestris</i>
<i>Astragalus onobrychis</i>	<i>Linum catharticum</i>	
<i>Brachypodium pinnatum</i>	<i>Medicago falcata</i>	
<i>Campanula glomerata</i>	<i>Onobrychis viciifolia</i>	
<i>Campanula sibirica</i>	<i>Origanum vulgare</i>	
<i>Carex humilis</i>	<i>Orobanche caryophyllacea</i>	
<i>Centaurea pannonica</i>	<i>Orobanche kochii</i>	
<i>Centaurea scabiosa</i>	<i>Orobanche lutea</i>	
<i>Centaurea stoebe</i>	<i>Phleum phleoides</i>	
<i>Chamaecytisus ruthenicus</i>	<i>Pimpinella saxifraga</i>	
<i>Coronilla varia</i>	<i>Plantago media</i>	
<i>Cruciata glabra</i>	<i>Poa angustifolia</i>	
<i>Dactylorhiza incarnata</i>	<i>Poa compressa</i>	
<i>Dianthus carthusianorum</i>	<i>Potentilla arenaria</i>	
<i>Echium russicum</i>	<i>Primula veris</i>	
<i>Elymus hispidus</i>	<i>Prunella grandiflora</i>	
<i>Eryngium planum</i>	<i>Salvia pratensis</i>	
<i>Euphorbia cyparissias</i>	<i>Salvia verticillata</i>	

## SECOND DAY OF POST-SYMPOSIUM EXCURSION (Thursday, 30.05.2013)

### Żurawce

Żurawce is a Natura 2000 site (code PLH060029) with an area of 35,4 ha. The area consists of 3 patches of dry grassland located on the mild, limestone slopes of the Solokija river in the vicinity of the villages of Machnów Stary, Korhynie and Żurawce.

**It is a site of occurrence of the following habitats included in the European Directive 92/43/EEC:**

-*Juniperus communis* formations on heaths or calcareous grasslands (code 5130)

-Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (code 6210)



Juniper thickets occur mainly in the steeper terrain, usually heavily eroding. Xerothermic grassland of the area are of initial character (most of the area was agriculturally used up to the beginning of the 21st century). In spite of this, they host a variety of rare and protected species.

In the area of Machnowska Góra hill, a rare mammal *Sicista subtilis* was observed in the 1990s. The invertebrate fauna of the sanctuary is well researched. A number of rare and endangered species have been recorded here such as the butterflies: *Papilio machaon*, *Polyommatus thersites*, *Thymelicus acteon*, *Satyrium acaciae*, *Gynaephora selenitica*, beetles: *Lecosomus pedestris*, *Mecaspis caesus*, *Liparus coronatus* and arachnids: *Jacksonella falconeri*, *Alopecosa solitaria*, *Oxyptila pullata* and *Pardosa alacris*.

A peculiarity of the Żurawce area is the presence of a World War II bunker belonging to the so-called Molotov Line. It is the name of the system of border fortifications built by the Soviet Union along its western border after the division of Polish territory by occupants according to the Molotov-Ribbentrop pact of 1939. Special units consisting of soldiers punished for misconduct as well as politically uncomfortable people participated in the construction of bunkers and anti-tank barriers. A large number of locals were also forced to take part.

A large area of the grasslands on the Machnowska Góra hill was afforested in the 1970s and 80s with *Pinus sylvestris* and *Pinus nigra*. Thus, within the framework of the "Conservation and restoration of xerothermic grasslands in Poland – theory and practice" scheme, the Naturalists' Club and the Regional Directorate for Environmental Protection in Lublin, with the help of specialized companies and volunteers, conduct a large scale felling of trees and shrubs and fight unwanted plant species.

The most severe threats for the sanctuary are posed by the natural processes of overgrowing of grasslands by shrub species (*Prunus spinosa* and *Cornus sanguinea*), as well as invasion by alien plants such as *Heracleum sosnowskyi*, *Robinia pseudoacacia* and *Solidago canadensis*.



**Short list of vascular plants found in dry grassland communities of the Żurawce site:**

*Achillea pannonica*

*Acinos arvensis*

*Agrimonia eupatoria*

*Ajuga chamaepitys*

*Ajuga genevensis*

*Allium oleraceum*

*Anemone sylvestris*

*Anthemis tinctoria*

*Anthyllis vulneraria*

*Arrhenatherum elatius*

*Aster amellus*

*Astragalus glycyphyllos*

*Astragalus onobrychis*

*Brachypodium pinnatum*

*Briza media*

*Calamagrostis epigejos*

*Campanula rapunculoides*

*Campanula sibirica*

*Carex caryophylla*

*Carex flacca*

*Carex michelli*

*Carlina onopordifolia*

*Carlina vulgaris*

*Centaurea pannonica*

*Centaurea scabiosa*

*Cephalanthera damasonium*

*Cerasus mahaleb*

*Cerintho minor*

*Chamaecytisus ruthenicus*

*Clematis recta*

<i>Coronilla varia</i>	<i>Leontodon hispidus</i>	<i>Pinus sylvestris</i>
<i>Crataegus monogyna</i>	<i>Leucanthemum ircutianum</i>	<i>Plantago media</i>
<i>Daucus carota</i>	<i>Ligustrum vulgare</i>	<i>Poa compressa</i>
<i>Echium vulgare</i>	<i>Lotus corniculatus</i>	<i>Polygala comosa</i>
<i>Elymus hispidus</i>	<i>Medicago falcata</i>	<i>Potentilla arenaria</i>
<i>Epipactis helleborine</i>	<i>Melampyrum arvense</i>	<i>Prunella vulgaris</i>
<i>Epipactis palustris</i>	<i>Muscari comosum</i>	<i>Prunus spinosa</i>
<i>Eryngium planum</i>	<i>Onobrychis viciifolia</i>	<i>Rosa canina</i>
<i>Euphorbia cyparissias</i>	<i>Orchis militaris</i>	<i>Rosa gallica</i>
<i>Falcaria vulgaris</i>	<i>Orchis purpurea</i>	<i>Rosa sherardii</i>
<i>Filipendula hexipetala</i>	<i>Orobanche alba</i>	<i>Rubus caesius</i>
<i>Fragaria vesca</i>	<i>Orobanche caryophyllacea</i>	<i>Salvia pratensis</i>
<i>Fragaria viridis</i>	<i>Orobanche elatior</i>	<i>Salvia verticillata</i>
<i>Galium album</i>	<i>Orobanche kochii</i>	<i>Sanguisorba minor</i>
<i>Galium verum</i>	<i>Orobanche lutea</i>	<i>Scabiosa ochroleuca</i>
<i>Gentiana cruciata</i>	<i>Orobanche picridis</i>	<i>Teucrium chamaedrys</i>
<i>Hieracium pilosella</i>	<i>Peucedanum alsaticum</i>	<i>Thalictrum minus</i>
<i>Hieracium piloselloides</i>	<i>Peucedanum cervaria</i>	<i>Thymelaea passerina</i>
<i>Hypericum perforatum</i>	<i>Picris hieracioides</i>	<i>Trifolium medium</i>
<i>Juniperus communis</i>	<i>Pimpinella saxifraga</i>	<i>Vicia tenuifolia</i>
<i>Lathyrus tuberosus</i>	<i>Pinus nigra</i>	





## Horodysko

Horodysko is a small Natura 2000 site (code PLH060060) with an area of approx. 2,9 ha. It is a fragment of a complex of limestone and loessy slopes of W, SW and S exposure, extending over a distance of about 3 km between the villages of Iłowiec and Sławęcín.

### **The European Directive 92/43/EEC habitats found here include:**

- Subcontinental peri-Pannonic scrub (code 40A0)
  - Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (code 6210)
- The greatest peculiarity of the area is a patch of *Cerasus fruticosa* shrubs, a species from the Polish

Red Data Book (category VU) and an occurrence of a rare grass *Festuca macutrensis*, also present in the Red Data Book (category VU).

The fauna of the area is rather poorly known. In the 1990s the local loess cliffs were home to the European bee-eater *Merops apiaster*, and near the village of Sławęcín there used to be a colony of spotted ground squirrel, which dwindled, like many in the Zamość region, due to the loss of pastoral practice.

The main threats to the Horodysko site include natural successional processes involving the overgrowing of grasslands by scrub and forest vegetation. Portions of slopes near Sławęcín and Iłowiec have been afforested. The grasslands are also threatened with being overgrown by the expansive *Calamagrostis epigejos*.

## Short list of vascular plants found in dry grassland communities of the Horodysko site:

<i>Achillea pannonica</i>	<i>Fragaria viridis</i>	<i>Rosa canina</i>
<i>Agrimonia eupatoria</i>	<i>Galium boreale</i>	<i>Rosa rubiginosa</i>
<i>Anthericum ramosum</i>	<i>Galium mollugo</i>	<i>Rosa sherardii</i>
<i>Anthyllis vulneraria</i>	<i>Galium verum</i>	<i>Rubus caesius</i>
<i>Astragalus cicer</i>	<i>Geranium sanguineum</i>	<i>Salvia pratensis</i>
<i>Astragalus glycyphyllos</i>	<i>Hieracium bauhinii</i>	<i>Salvia verticillata</i>
<i>Brachypodium pinnatum</i>	<i>Hieracium pilosella</i>	<i>Scabiosa ochroleuca</i>
<i>Briza media</i>	<i>Hypericum perforatum</i>	<i>Stachys recta</i>
<i>Calamagrosis epigejos</i>	<i>Knautia arvensis</i>	<i>Teucrium chamaedrys</i>
<i>Campanula sibirica</i>	<i>Koeleria macrantha</i>	<i>Thalictrum minus</i>
<i>Carex michelii</i>	<i>Lavatera thuringiaca</i>	<i>Thymus marschallianus</i>
<i>Carex praecox</i>	<i>Lembotropis nigricans</i>	<i>Thymus pulegioides</i>
<i>Carlina vulgaris</i>	<i>Leontodon hispidus</i>	<i>Trifolium alpestre</i>
<i>Centaurea pannonica</i>	<i>Leucanthemum ircutianum</i>	<i>Trifolium medium</i>
<i>Centaurea scabiosa</i>	<i>Medicago falcata</i>	<i>Trifolium montanum</i>
<i>Cerasus fruticosa</i>	<i>Onobrychis viciifolia</i>	<i>Verbascum phoeniceum</i>
<i>Chamaecytisus ruthenicus</i>	<i>Phleum phleoides</i>	<i>Veronica chamaedrys</i>
<i>Cirsium vulgare</i>	<i>Pimpinella saxifraga</i>	<i>Veronica officinalis</i>
<i>Clematis recta</i>	<i>Plantago media</i>	<i>Vicia tenuifolia</i>
<i>Coronilla varia</i>	<i>Platanthera bifolia</i>	<i>Vincetoxicum hirundinaria</i>
<i>Cruciata glabra</i>	<i>Poa angustifolia</i>	<i>Viola hirta</i>
<i>Echium vulgare</i>	<i>Poa compressa</i>	
<i>Elymus hispidus</i>	<i>Polygala comosa</i>	
<i>Euphorbia cyparissias</i>	<i>Potentilla arenaria</i>	
<i>Festuca makutrensis</i>	<i>Potentilla heptaphylla</i>	
<i>Festuca rupicola</i>	<i>Prunella grandiflora</i>	
<i>Filipendula vulgaris</i>	<i>Prunus spinosa</i>	
<i>Fragaria vesca</i>	<i>Ranunculus bulbosus</i>	

## Żmudź

Żmudź is a Natura 2000 site (code PLH060075) comprising the plateau and northern slopes of a mid-field chalk hill located southwest of the village of Żmudź. In the 1970s a large portion of the area was afforested (it presented no economic value). The only part to escape the afforestation was the north eroding slope, where in 1988 a nature reserve was established, with an area of 5,81 ha.

### The following European Directive 92/43/EEC habitats are recorded here:

-*Juniperus communis* formations on heaths or calcareous grasslands (code 5130)

-Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (code 6210)

The xerothermic grasslands of 'Żmudź' sanctuary are to a large extent initial in character. The formerly present *Inuletum ensifoliae* community (of Festuco-Brometea), rich in many rare and endangered species of flora (*Echium russicum*, *Orchis morio*), retreated most likely due to ongoing overshadowing of the undergrowth by the plantings of *Pinus nigra* and *Larix decidua*. The fauna of the area is poorly researched. Colorful *Papilio machaon* can be frequently observed.

An interesting historical detail about the area is the presence of a World War II cemetery located in the central part of the reserve. Since the developing plantings of coniferous trees threaten the photophilous species, the Regional Directorate for Environmental Protection in Lublin employs active conservation measures involving felling of trees and thinning of the thickest juniper bushes.



## Short list of vascular plants found in dry grassland communities of the Žmudž site:

<i>Achillea millefolium</i>	<i>Eryngium planum</i>	<i>Prunella grandiflora</i>
<i>Agrimonia eupatoria</i>	<i>Galium verum</i>	<i>Pyrus communis</i>
<i>Anemone sylvestris</i>	<i>Gentiana cruciata</i>	<i>Rosa canina</i>
<i>Anthemis tinctoria</i>	<i>Hypericum perforatum</i>	<i>Salvia pratensis</i>
<i>Anthyllis vulneraria</i>	<i>Inula ensifolia</i>	<i>Salvia verticillata</i>
<i>Arrhenatherum elatius</i>	<i>Juniperus communis</i>	<i>Sanguisorba minor</i>
<i>Asperula cynanchica</i>	<i>Larix decidua</i>	<i>Scabiosa ochroleuca</i>
<i>Astagalus onobrychis</i>	<i>Lembotropis nigricans</i>	<i>Teucrium chamaedrys</i>
<i>Aster amellus</i>	<i>Leontodon hispidus</i>	<i>Thymelaea passerina</i>
<i>Brachypodium pinnatum</i>	<i>Leucanthemum vulgare</i>	<i>Thymus pulegioides</i>
<i>Calamagrostis epigejos</i>	<i>Linum catharticum</i>	<i>Ulmus glabra</i>
<i>Campanula rapunculoides</i>	<i>Linum flavum</i>	
<i>Campanula sibirica</i>	<i>Listera ovata</i>	
<i>Carex flacca</i>	<i>Medicago falcata</i>	
<i>Carlina onopordifolia</i>	<i>Melampyrum arvense</i>	
<i>Carlina vulgaris</i>	<i>Onobrychis viciifolia</i>	
<i>Centaurea rhenana</i>	<i>Orchis militaris</i>	
<i>Centaurea scabiosa</i>	<i>Origanum vulgare</i>	
<i>Cephalanthera damasonium</i>	<i>Orobanche alba</i>	
<i>Cerintho minor</i>	<i>Orobanche elatior</i>	
<i>Chamaecytisus ruthenicus</i>	<i>Orobanche lutea</i>	
<i>Cichorium intybus</i>	<i>Picris hieracioides</i>	
<i>Coronilla varia</i>	<i>Pimpinella saxifraga</i>	
<i>Cypripedium calceolus</i>	<i>Pinus sylvestris</i>	
<i>Dactylis glomerata</i>	<i>Plantago lanceolata</i>	
<i>Echium vulgare</i>	<i>Plantago media</i>	
<i>Elymus hispidus</i>	<i>Platanthera chorantha</i>	
<i>Epipactis helleborine</i>	<i>Poa compressa</i>	

## THIRD DAY OF POST-SYMPIOSIUM EXCURSION (Friday, 31.05.2013)

### Mećmierz

Xerothermic communities in the vicinity of Mećmierz village are located on a 2-kilometre stretch of the Vistula river valley slope and in a dry valley called 'Okale Gorge'.

**The grasslands of Mećmierz region are protected within Natura 2000 network as 'Przełom Wisły w Małopolsce' (code PLH060045), where numerous protected habitats can be found:**

- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (code 6430)
- Alluvial meadows of river valleys of the *Cnidion dubii* (code 6440)
- Lowland hay meadows (code 6510)
- Juniperus communis* formations on heaths or calcareous grasslands (code 5130)
- Galio-Carpinetum oak-hornbeam forests (code 9170)
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (code 91E0)
- Euro-Siberian steppic woods with *Quercus spp.* (code 9110)
- Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation (code 3150)
- Rivers with muddy banks with *Chenopodium rubri* p.p. and *Bidenton* p.p. vegetation (code 3270)
- Xeric sand calcareous grasslands (code 6120)
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (code 6210)

Patches of *Inuletum ensifoliae* (*Festuco-Brometea* class) formed on shallow chalky rendzinas. In some parts (especially the Okale Gorge) sand grasslands of *Festuco-Koelerietum glaucae* occur.

The fauna of the region is fairly well documented.

Interesting bird species can be encountered here: birds *Larus melanocephalus*, *Sternula albifrons*, *Circus aeruginosus*, bats: *Myotis bechsteinii*, *Myotis dasycneme*, *Myotis daubentonii*, reptiles: *Coronella austriaca*, *Emys orbicularis* and invertebrates: *Maculinea teleius*, *Maculinea nausithous*, *Zygaena carniolica*, *Polyommatus bellargus* or *Ophiogomphus cecilia*.

In the picturesque village of Mećmierz one can admire traditional timber houses and a Dutch style windmill. Albrechtówka hill overlooks the Vistula river valley and the 16th century Janowiec castle on the opposite bank of the river. The Mećmierz region dry grasslands are threatened by the encroachment of woody species. For that reason the Regional Directorate for Environmental Protection in Lublin conducts protective work here involving felling of trees (*Betula pendula*) and re-introduction of endangered plant species (*Iris aphylla*).



**Short list of vascular plants found in dry grassland communities of the Męcimierz site:**

<i>Achillea pannonica</i>	<i>Fragaria vesca</i>	<i>Orobanche elatior</i>
<i>Adonis vernalis</i>	<i>Galium album</i>	<i>Orobanche lutea</i>
<i>Anemone sylvestris</i>	<i>Galium verum</i>	<i>Peucedanum cervaria</i>
<i>Anthemis tinctoria</i>	<i>Genista tinctoria</i>	<i>Pimpinella saxifraga</i>
<i>Anthericum ramosum</i>	<i>Gentiana cruciata</i>	<i>Polygala amarella</i>
<i>Anthyllis vulneraria</i>	<i>Hieracium bauhinii</i>	<i>Potentilla arenaria</i>
<i>Arabis hirta</i>	<i>Hieracium piloselloides</i>	<i>Primula veris</i>
<i>Arenaria serpyllifolia</i>	<i>Hypericum perforatum</i>	<i>Quercus robur</i>
<i>Artemisia campestris</i>	<i>Hypochoeris maculata</i>	<i>Ranunculus acris</i>
<i>Aster amellus</i>	<i>Inula ensifolia</i>	<i>Reseda lutea</i>
<i>Berberis vulgaris</i>	<i>Iris aphylla</i>	<i>Rhamnus catharticus</i>
<i>Brachypodium pinnatum</i>	<i>Juniperus communis</i>	<i>Rosa canina</i>
<i>Carex humilis</i>	<i>Knautia arvensis</i>	<i>Rosa rubiginosa</i>
<i>Carex michelii</i>	<i>Koeleria glauca</i>	<i>Rumex acetosella</i>
<i>Carex tomentosa</i>	<i>Lembotropis nigricans</i>	<i>Salvia pratensis</i>
<i>Carlina vulgaris</i>	<i>Leontodon hispidus</i>	<i>Salvia verticillata</i>
<i>Centaurea rhenana</i>	<i>Ligustrum vulgare</i>	<i>Sanguisorba minor</i>
<i>Centaurea scabiosa</i>	<i>Listera ovata</i>	<i>Scabiosa ochroleuca</i>
<i>Cerasus avium</i>	<i>Lotus corniculatus</i>	<i>Silene nutans</i>
<i>Clematis recta</i>	<i>Medicago falcata</i>	<i>Stachys germanica</i>
<i>Cornus sanguinea</i>	<i>Melampyrum arvense</i>	<i>Stachys recta</i>
<i>Coronilla varia</i>	<i>Melica nutans</i>	<i>Taraxacum officinale</i>
<i>Crataegus monogyna</i>	<i>Onobrychis viciifolia</i>	<i>Teucrium chamaedrys</i>
<i>Echium vulgare</i>	<i>Ononis spinosa</i>	<i>Thlaspi perfoliatum</i>
<i>Epipactis helleborine</i>	<i>Origanum vulgare</i>	<i>Thymus pulegioides</i>
<i>Eryngium planum</i>	<i>Ornithogalum collinum</i>	<i>Viburnum opulus</i>
<i>Euphorbia cyparissias</i>	<i>Orobanche alba</i>	<i>Viola hirta</i>
<i>Festuca psammofila</i>	<i>Orobanche arenaria</i>	
<i>Festuca rupicola</i>	<i>Orobanche caryophyllacea</i>	



